

Abstract

Methods and constructs for the introduction of multiple genes into plants using a single transformation event are described. Constructs contain a single 5' promoter operably linked to DNA encoding a modified intein splicing unit. The splicing unit is expressed as a polyprotein and consists of a first protein fused to an intein fused to a second protein. The splicing unit has been engineered to promote excision of all non-essential components in the polyprotein but prevent the ligation reactions normally associated with protein splicing. Additional genetic elements encoding inteins and additional proteins can be fused in frame to the 5'-terminus of the coding region for the second protein to form a construct for expression of more than two proteins. A single 3' termination sequence, such as a polyadenylation sequence when the construct is to be expressed in eucaryotic cells, follows the last coding sequence. These methods and constructs are particularly useful for creating plants with stacked input traits, illustrated by glyphosate tolerant plants producing BT toxin, and/or value added products, illustrated by the production of polyhydroxyalkanoates in plants.

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